

Section and Measure Number	Avoidance, Minimization, and/or Mitigation Measure and Brief Description	Responsible Party	Timing / Phase	Compliance Action	Verification of Compliance		Remarks
					Initial	Date	
	Land Use						
LU-1	If a build alternative is identified for implementation, either Caltrans or OCTA shall request the County of Orange and the cities along the project corridor to amend their respective General Plans to reflect the identified build alternative and the modification of land use designations for properties that would be acquired for the project that are not currently designated for transportation uses.	Caltrans/OCTA	Construction				
LU-2	Caltrans shall implement a TMP throughout the duration of the construction activities and make this document available to the public. A purpose of the TMP is to minimize project-related construction disruptions and would include traffic strategies designed in coordination with local jurisdictions.	Resident Engineer	Construction				
LU-3	Pedestrian access shall be maintained via detour at Pleasant View Park at all times during construction of the project.	Resident Engineer	Construction				
LU-4	Existing vegetation or landscaping at Buckingham Park that is damaged or removed during construction shall be replaced. Replacement plantings shall be consistent with any existing preserved vegetation. Replacement plantings shall be reviewed and approved by a Caltrans District 12 Landscape Architect.	Resident Engineer	Construction				
LU-5	Existing vegetation or landscaping at Cascade Park that is damaged or removed during construction shall be replaced. Replacement plantings shall be consistent with any existing preserved vegetation. Replacement plantings shall be reviewed and approved by a Caltrans District 12 Landscape Architect.	Design Engineer	Design				
LU-6	To avoid temporary closures of both riverbank trails of the Santa Ana River Trail, phased construction of the Euclid Street southbound I-405 on-ramp from Ellis Avenue shall provide access to at least one of the riverbank trails at all times during construction.	Resident Engineer	Construction				
COM-13	Where acquisition and relocation are unavoidable, the provisions of the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended), Title 49 CFR Part 24 and, where applicable, the California Public Park Preservation Act of 1971 will be followed. An appraisal of the affected property will be obtained, and an offer for the full appraisal will be made.	Caltrans/OCTA	Row Acquisition				
	COMMUNITY IMPACTS						
COM-1**	No two consecutive/adjacent off-ramps or two consecutive/adjacent on-ramps in the same direction will be closed concurrently.	Resident Engineer	Construction				
COM-2**	Business access will be maintained at all times during construction, consistent with Section 7-1.03 Public Convenience of Standard Specifications (2010).	Resident Engineer	Construction				
COM-3**	Ramps that provide access immediately adjacent to South Coast Plaza (South Coast Drive northbound off-ramp), Bella Terra (Beach Boulevard off-ramps), or Westminster Mall (Bolsa Avenue northbound and Goldenwest Street southbound off-ramps) will not be closed from November 1 to January 31.	Caltrans/OCTA	ROW Acquisition				
COM-4**	Provision of motorist information (i.e., existing changeable message signs, portable changeable message signs, stationary ground-mounted signs, traffic radio announcements, and the Caltrans Highway Information Network [CHIN]).	Resident Engineer	Construction				
COM-5**	Incorporation of traffic circulation construction strategies (i.e., lane closure restrictions during holidays and special local events, closure of secondary streets during construction to allow quick construction and reopening, lane modifications [i.e., lane reductions, shifts] to maintain the number of lanes needed, allowing night work and extended weekend work, maintaining business access, and maintaining pedestrian and bicycle access). In addition, see Traffic Measure T-1 for public information regarding the TMP. Upon completion, the final TMP can be obtained by request from OCTA.	Resident Engineer	Construction				
COM-6**	Implementation of alternate and detour routes strategies (i.e., street/intersection improvements [e.g., widening, pavement rehabilitation, removal of median, restriping]) to provide added capacity to handle detour traffic, signal improvements, adjustment of signal timing and/or signal coordination to increase vehicle throughput, improve traffic flow and optimize intersection capacity, turn restrictions at intersections and roadways necessary to reduce congestion and improve safety, parking restrictions on alternate and detour routes during work hours to increase capacity, reduce traffic conflicts, and improve access.	Resident Engineer	Construction				
COM-7**	Coordination with the relevant parks and recreation departments of affected parks shall occur during construction to ensure the access and safety of users in the parks and trails adjacent to the proposed project.	OCTA/Caltrans	Construction				
COM-8**	Coordination with utility service providers and the implementation of public outreach program will be conducted to surrounding communities.	Design Engineer	Design				
COM-9**	Close coordination with railroad owners and operators will be conducted during final design and construction phases to minimize impacts to railroad operations.	OCTA/Caltrans	Design				
COM-10**	During design and construction, OCTA shall work closely with affected property owners to identify means to avoid and minimize parking impacts, including space management such as restriping of parking areas and identifying parking replacement options. When required, property owners shall receive compensation for the partial loss of property through the ROW acquisition process.	Caltrans/OCTA	ROW Acquisition				

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**Mitigation for Potentially Significant Impacts and Less than Significant with Mitigation under CEQA.

I-405 Improvement Project from State Route (SR) 73 to Interstate 605 (I-605) in Orange and Los Angeles Counties, California

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COM-11**	Maintain good public relations with the community to minimize objections to the unavoidable construction impacts. OCTA will implement a community information plan to maintain good community relations with the public by providing timely information about anticipated construction activities to affected citizens and adjacent property owners. Notification methods could include, but are not limited to, website, fliers, mailers, e-mail blasts, and electronic messaging on the freeway.	Caltrans/OCTA	Construction				
COM-12**	The existing Heil Avenue pedestrian crossing will remain open for use until the replacement crossing has been completed.	Caltrans/OCTA	ROW Acquisition				
COM-13	Where acquisition and relocation are unavoidable, the provisions of the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (as amended), Title 49 CFR Part 24 and, where applicable, the California Public Park Preservation Act of 1971 will be followed.	Caltrans/OCTA	Row Acquisition				
	UTILITIES						
UT-1	During final design, utility providers will be made aware of project developments and be involved in the planning of utility rerouting, identification of potential conflicts, and the formulation of strategies to deal with unanticipated problems that may arise during construction.	Design Engineer	Design				
UT-2**	During construction, emergency service providers will be alerted in advance of any temporary road closures and delays so that they have adequate time to make appropriate accommodations to ensure prompt emergency response times that fulfill their responsibilities and defined service objectives.	Resident Engineer	Construction				
	TRAFFIC AND TRANSPORTATION/PEDESTRIAN AND BICYCLE FACILITIES						
T1**	A Final TMP will be prepared prior to project construction that identifies methods to avoid and minimize construction-related traffic and circulation effects and minimize impacts to pedestrian and bicycle access, including ADA-compliant features, as a result of the proposed project. During construction, the contractor shall implement the methods identified in the Final TMP.	Design Engineer	Design				
T-2**	During final design, plans shall be prepared to incorporate the following improvements at the Slater Avenue/Brookhurst Street intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Convert the southbound right-turn lane on Brookhurst Street to a fourth through lane (with right turns shared).Convert the existing second eastbound through lane on Slater Avenue at Brookhurst Street to a shared through/right-turn lane. Retain the existing eastbound exclusive right-turn lane.Provide increased queue storage areas for northbound right-turn, northbound left-turn, eastbound right-turn, and westbound left-turn movements.	Design Engineer	Design				
T-3**	During final design, plans shall be prepared to incorporate the following improvements at the Talbert Avenue/Brookhurst Street intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Add a third westbound through lane on Talbert Avenue. Retain the existing westbound exclusive right-turn lane.Convert the southbound right-turn lane on Brookhurst Street to a fourth through lane (with right turns shared).Convert the eastbound right-turn lane on Talbert Avenue to a fourth through lane (with right turns shared). Convert the existing third northbound through lane on Brookhurst Street to a shared through/right-turn lane. Retain the existing northbound exclusive right-turn lane.	Design Engineer	Design				
T-4**	During final design, plans shall be prepared to incorporate the following improvements at the Warner Avenue/Magnolia Street intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Convert the southbound right-turn lane on Magnolia Street at Warner Avenue to a shared through/right-turn lane. Extend the third southbound through lane on Magnolia Street south of the intersection.Provide dual northbound left-turn lanes on Magnolia Street at Warner Avenue.Extend the southbound dual left-turn pocket from the existing 200 ft to approximately 440 ft of queue storage.	Design Engineer	Design				
T-5**	During final design, plans shall be prepared to incorporate the following improvements at the McFadden Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Provide an exclusive northbound right-turn lane on Beach Boulevard.Provide increased queue storage areas for eastbound right-turn and westbound left-turn movements.	Design Engineer	Design				
T-6**	During final design, plans shall be prepared to incorporate the following improvements at the Center Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Provide an exclusive right-turn lane and a shared through/right-turn lane on southbound Beach Boulevard.Add a third eastbound right-turn lane on Center Avenue at Beach Boulevard. Increase the eastbound Center Avenue left-turn queue storage to 270 ft per lane and right-turn queue storage to 450 ft per lane.Provide a fifth northbound through lane on Beach Boulevard.	Design Engineer	Design				
T-7**	During final design, plans shall be prepared to incorporate the following improvements at the Edinger Avenue/Beach Boulevard intersection, which the contractor shall implement during construction: <ul style="list-style-type: none">Add a fourth northbound through lane on Beach Boulevard at Edinger Avenue.Convert the existing eastbound right-turn only lane on Edinger Avenue at Beach Boulevard to a fourth through lane (with a shared right turn) and extend the lane to Parkside Lane to increase vehicle queue storage. Sign and stripe to allow two curb lanes on eastbound Edinger Avenue at Beach Boulevard as freeway access lanes (to the southbound on-ramp at Edinger Avenue).Extend the existing southbound dual left-turn lanes on Beach Boulevard from the existing queue storage of 240 ft to an average of 300 ft per lane.Widen the Edinger Avenue overcrossing to provide two westbound through lanes and two eastbound through lanes. The	Design Engineer	Design				

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	<div>third eastbound through lane on Edinger Avenue from Beach Boulevard is dropped at the bridge overcrossing.</div> <ul style="list-style-type: none">At the intersection of eastbound Edinger Avenue and the I-405 southbound on-ramp, provide an exclusive right-turn and a shared through/right-turn lane on eastbound Edinger Avenue, thereby allowing two lanes onto the southbound ramp.Provide increased queue storage areas for southbound left-turn, eastbound left-turn, and westbound left-turn movements.						
T-8**	<div>During final design, plans shall be prepared to incorporate the following improvements at the Bolsa Avenue/Goldenwest Street intersection, which the contractor shall implement during construction:</div> <ul style="list-style-type: none">Widen the southbound approach on Goldenwest Street to provide an exclusive right-turn lane and a second left-turn lane. The southbound left-turn pocket is extended past the Goldenwest Street/Westminster Mall Road intersection.Widen the northbound approach on Goldenwest Street at Bolsa Avenue to provide an exclusive right-turn lane with queue storage of approximately 430 ft.Convert the eastbound right-turn lane on Bolsa Avenue to a fourth through lane (with right turns shared). Widen the south side of Bolsa Avenue between Goldenwest Street and the I-405 southbound on-ramp. Sign and stripe to allow two curb lanes on eastbound Bolsa Avenue at Goldenwest Street as freeway access lanes (to the I-405 southbound on-ramp from Bolsa Avenue).Widen the westbound approach to provide extended queue storage of 750 ft for the right-turn lane and increased queue storage of 280 ft for the left-turn lanes.	Design Engineer	Design				
T-9**	<div>During final design, plans shall be prepared to incorporate the following improvements at the Garden Grove Boulevard and Bolsa Chica Road/Valley View Street intersection, which the contractor shall implement during construction:</div> <ul style="list-style-type: none">Add a third westbound right-turn lane on Garden Grove Boulevard.Add a third through lane on northbound Bolsa Chica Road/Valley View Street.Extend the northbound right-turn lane on Bolsa Chica Road/Valley View Street and increase the existing queue storage of 400 ft to approximately 800 ft.	Design Engineer	Design				
T-10**	<div>A payment shall be made by OCTA (Phase 1) and Caltrans (Phase 2) to the City of Long Beach based on a Cooperative Agreement to be negotiated and executed between OCTA and the City of Long Beach. The Cooperative Agreement shall identify the project's fair share of the costs for the improvements at intersections owned by the City of Long Beach based on the Preferred Alternative (PA) and in accordance with the fair share percentages for each location identified below. The Cooperative Agreement shall provide:</div> <ul style="list-style-type: none">That the City of Long Beach's Transportation Mitigation Program will be revised to include the locations listed below under A, B, or C for the PA;That the payment made by OCTA shall be placed into the City of Long Beach Transportation Mitigation Program and shall only be used to provide improvements to remedy impacts of the PA at the intersections listed below under A, B, or C for the PA;The amount of the total payment to be applied to each location; andThat the proposed improvements shall be implemented by the City of Long Beach, with the City of Long Beach bearing responsibility for necessary clearances and permits.If the implementing agency of this measure decides not to move forward with these improvements, these cumulative impacts would remain adverse. <div>A. If PA is Alternative 1:</div> <ul style="list-style-type: none">Los Coyotes Diagonal and Bellflower Boulevard intersection:<ul style="list-style-type: none">Add a second left-turn lane to eastbound approach.Fair Share Percentage: 4.45%. (estimated total construction cost in 2013 dollars is \$250,000) <div>B. If PA is Alternative 2:</div> <ul style="list-style-type: none">Willow Street and Bellflower Boulevard intersection:<ul style="list-style-type: none">Add an exclusive right-turn lane to eastbound approach; andAdd a second left-turn lane to westbound approach; andAdd a second left-turn lane to southbound approach.Fair Share Percentage: 10.41%. (estimated total construction cost in 2013 dollars is \$810,000)Willow Street and Los Coyotes Diagonal intersection:<ul style="list-style-type: none">Add a second left-turn lane to eastbound approach; andAdd a second left-turn lane to southbound approach.Fair Share Percentage: 31.57%. (estimated total construction cost in 2013 dollars is \$440,000)Willow Street and Woodruff Avenue intersection:	OCTA	Design				

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	<ul style="list-style-type: none">○ Add a second left-turn lane to northbound approach.○ Fair Share Percentage: 10.40%. (estimated total construction cost in 2013 dollars is \$240,000) <p>C. If PA is Alternative 3:</p> <ul style="list-style-type: none">• Willow Street and Bellflower Boulevard intersection:<ul style="list-style-type: none">○ Add an exclusive right-turn lane to eastbound approach;○ Add a second left-turn lane to westbound approach; and○ Add a second left-turn lane to southbound approach.○ Fair Share Percentage: 10.41%. (estimated total construction cost in 2013 dollars is \$810,000)• Los Coyotes Diagonal and Bellflower Boulevard intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to eastbound approach.○ Fair Share Percentage: 8.32%. (estimated total construction cost in 2013 dollars is \$250,000)• Willow Street and Los Coyotes Diagonal intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to eastbound approach; and○ Add a second left-turn lane to southbound approach.○ Fair Share Percentage: 30.03%. (estimated total construction cost in 2013 dollars is \$440,000)						
T-11**	<p>A payment shall be made by OCTA to Caltrans based on a Traffic Mitigation Agreement Fair Share Deferment to be negotiated and executed between OCTA and Caltrans. The Traffic Mitigation Agreement Fair Share Deferment shall identify the project's fair share of the costs for the improvements at intersections owned by the State of California based on the PA and in accordance with the fair share percentages for each location identified below. The Traffic Mitigation Agreement Fair Share Deferment shall provide:</p> <ul style="list-style-type: none">• That Caltrans will establish separate accounts for each of the locations listed below under A, B, or C for the PA;• That the payment made by OCTA shall be held by Caltrans and shall only be used to provide improvements to remedy impacts of the PA at the intersections listed below under A, B, or C for the PA;• The amount of the total payment to be applied to each location;• That the amounts for different locations shall not be commingled; and• That the proposed improvements shall be implemented by Caltrans, with Caltrans bearing responsibility for necessary clearances and permits.• If the implementing agency of this measure decides not to move forward with these improvements, these cumulative impacts would remain adverse. <p>It should be noted that the State of California would implement a project only when enough funds have been collectively received for that specific mitigation measure.</p> <p>A. If PA is Alternative 1:</p> <ul style="list-style-type: none">• SR-22 westbound on-/off-ramp and College Park Drive intersection:<ul style="list-style-type: none">○ Add a second northbound through lane to the off-ramp approach to College Park Drive starting approximately 300 ft south of their intersection; and○ Replace existing traffic control with a traffic signal.○ Fair Share Percentage: 12.11%. (estimated total construction cost in 2013 dollars is \$1,570,000)• 7th Street and Pacific Coast Highway intersection:<ul style="list-style-type: none">○ Add protected/permitted signal phasing to the eastbound and westbound approaches of Pacific Coast Highway to Bellflower Boulevard.○ Fair Share Percentage: 11.70%. (estimated total construction cost in 2013 dollars is \$450,000)• 7th Street and West Campus Drive intersection:<ul style="list-style-type: none">○ Add an exclusive right-turn lane to westbound approach, modifying traffic signals as needed.○ Fair Share Percentage: 9.16%. (estimated total construction cost in 2013 dollars is \$300,000)• 7th Street and Bellflower Boulevard intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to eastbound approach, modifying signals and adjusting sidewalk as necessary.○ Fair Share Percentage: 11.70%. (estimated total construction cost in 2013 dollars is \$640,000) <p>B. If PA is Alternative 2:</p> <ul style="list-style-type: none">• SR-22 westbound on-/off-ramp and College Park Drive intersection:<ul style="list-style-type: none">○ Add a second northbound through lane to the off-ramp approach to College Park Drive starting approximately 300 ft south of their intersection; and○ Replace existing traffic control with a traffic signal.○ Fair Share Percentage: 33.25%. (estimated total construction cost in 2013 dollars is \$1,570,000)• 7th Street and Pacific Coast Highway intersection:<ul style="list-style-type: none">○ Add protected/permitted signal phasing to the eastbound and westbound approaches of Pacific Coast Highway to Bellflower Boulevard.○ Fair Share Percentage: 7.84%. (estimated total construction cost in 2013 dollars is \$450,000)• 7th Street and Bellflower Boulevard intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to eastbound approach, modifying signals and adjusting sidewalk as necessary.○ Fair Share Percentage: 16.92%. (estimated total construction cost in 2013 dollars is \$640,000)• 7th Street and Channel Drive intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to westbound approach, modifying signals as necessary; and○ Provide dual southbound exclusive left-turn lanes.	OCTA	Design				

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	<ul style="list-style-type: none">○ Fair Share Percentage: 13.59%. (estimated total construction cost in 2013 dollars is \$240,000)• 7th Street and West Campus Drive intersection:<ul style="list-style-type: none">○ Add an exclusive right-turn lane to westbound approach, modifying traffic signals as necessary.○ Fair Share Percentage: 27.34%. (estimated total construction cost in 2013 dollars is \$300,000)• 7th Street and East Campus Drive intersection:<ul style="list-style-type: none">○ Add a right-turn lane to westbound approach, modifying traffic signals as necessary and maximizing eastbound and westbound left-turn pocket lengths.○ Fair Share Percentage: 21.30%. (estimated total construction cost in 2013 dollars is \$450,000) <p>C. If PA is Alternative 3:</p> <ul style="list-style-type: none">• 7th Street and Pacific Coast Highway intersection:<ul style="list-style-type: none">○ Add protected/permitted signal phasing to the eastbound and westbound approaches of Pacific Coast Highway to Bellflower Boulevard.○ Fair Share Percentage: 8.08%. (estimated total construction cost in 2013 dollars is \$450,000)• 7th Street and Bellflower Boulevard intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to eastbound approach, modifying signals and adjusting sidewalk as necessary.○ Fair Share Percentage: 17.64%. (estimated total construction cost in 2013 dollars is \$640,000)• 7th Street and Channel Drive intersection:<ul style="list-style-type: none">○ Add a second left-turn lane to westbound approach, modifying signals as necessary; and○ Provide dual southbound exclusive left-turn lanes.○ Fair Share Percentage: 14.01%. (estimated total construction cost in 2013 dollars is \$240,000)• 7th Street and West Campus Drive intersection:<ul style="list-style-type: none">○ Add an exclusive right-turn lane to westbound approach, modifying traffic signals as necessary.○ Fair Share Percentage: 25.02%. (estimated total construction cost in 2013 dollars is \$300,000)• 7th Street and East Campus Drive intersection:<ul style="list-style-type: none">○ Add a right-turn lane to westbound approach, modifying traffic signals as necessary and maximizing eastbound and westbound left-turn pocket lengths.○ Fair Share Percentage: 7.39%. (estimated total construction cost in 2013 dollars is \$450,000)						
T-12**	To address the potential operational challenge on the express lanes (under the HOV2+ free policy), a process will be developed to address the issue by considering HOV occupancy policy which may include, but not limited to: <ul style="list-style-type: none">• adjusting to HOV3+ free with HOV2s discounted tolls• adjusting to HOV3+ free with HOV2s full tolls• adjusting to tolling HOV2s on individual tolling segments such as direct connectors to or from other freeways• periodic adjustments of tolling rates to maintain operations on individual tolling segments						
	VISUAL/AESTHETICS						
VIS-1**	Beginning with preliminary design and continuing through final design and construction, plan, save, and protect as much existing vegetation in the corridor, especially eucalyptus and other skyline trees, as feasible.	Design Engineer/ Resident Engineer	Design Construction				
VIS-2**	Survey exact locations for existing trees and include in plans.	Design Engineer	Design				
VIS-3**	Protect with temporary fencing large infield areas of existing plantings to be preserved.	Design Engineer/ Resident Engineer/ Biologist	Design/ Construction				
VIS-4**	Transplant, relocate, protect, and maintain existing trees that are in conflict with the proposed improvements, per Caltrans District 12 Landscape Architect approval.	Resident Engineer/ Biologist	Construction				
VIS-5**	Beginning with preliminary design and continuing through final design and construction, develop construction plans that apply architectural detailing to the proposed soundwalls, retaining walls, and bridges, including textures, colors, and patterns. Include elements such as caps, columns, pier caps, parapets, fencing, and abutment and wing walls as shown in the Aesthetics and Landscape Master Plan. In addition, bridge or architectural elements on ramps, bridges, and soundwalls will include forms and lines	Design Engineer/ Resident Engineer	Design/ Construction				

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	to match the existing built-environment features.						
VIS-6**	Beginning with preliminary design and continuing through final design and construction, landscape and revegetate disturbed areas to the greatest extent feasible.	Design Engineer/ Resident Engineer	Design / Construction				
VIS-7**	Include skyline trees in the planting palette to bring down the scale of the new freeway elements.	Design Engineer	Design				
VIS-8**	Fund from this parent project and accomplish by separate contract a 3-year extended plant establishment project to assure a well-established highway planting. This separate contract must begin as soon as possible upon completion of the 1-year plant establishment period that may be accomplished with the roadway contract.	OCTA	Construction				
VIS-9**	Design basins so that they appear to be a natural landscape feature, such as a dry streambed or a riparian pool. They shall be shaped in an informal, curvilinear manner.	Design Engineer/ Resident Engineer	Design/ Construction				
VIS-10**	Basin slope grading will incorporate slope rounding, variable gradients, and be similar to the surrounding topography to de-emphasize the edge. If a wall or hard feature is necessary, it shall be worked into the overall design concept.	Design Engineer/ Resident Engineer	Design/ Construction				
VIS-11**	Employ grading design of any ponds or swales, wherever possible, to be sympathetic to the Aesthetic and Landscape Master Plan.	Design Engineer/ Resident Engineer	Design/ Construction				
VIS-12**	Locate maintenance access drives in unobtrusive areas away from local streets. Such drives must consist of inert materials or herbaceous groundcover that is visually compatible with the surrounding landscape.	Design Engineer	Design				
VIS-13**	Design all basins so that chain-link perimeter fencing is not required.	Design Engineer	Design				
VIS-14**	Design all visible concrete structures and surfaces to adhere to the Aesthetic and Landscape Master Plan when developed.	Design Engineer	Design				
VIS-15**	Design rock slope protection to consist of aesthetically pleasing material with a variety of sizes.	Design Engineer	Design				
VIS-16**	Limit the use of bioswales within corridor landscape areas. If they must be used, locate them in nonobtrusive areas and design to appear as natural features.	Design Engineer	Design				
VIS-17**	Caltrans has existing ongoing maintenance programs for the control and removal of graffiti, which would apply to all new and modified structures on public and private property, as appropriate. Key components of those programs are: <ul style="list-style-type: none">• Chapter D1, Litter, Debris, and Graffiti (July 2006), in the Caltrans Maintenance Manual (Volume I, January 2011) describes Caltrans maintenance program for the control and removal of graffiti. Key program components applicable to the project features are:<ul style="list-style-type: none">- Use of recycled paint for various structures and matching paint used to cover graffiti with the original paint color on the structure.- Use of physical devices, such as rat guards, sign hoods, razor wire, and glare screen patches, to limit access to facilities targeted by taggers.- Replacement of ground-mounted signs with signs that have protective coatings or application of protective coatings to signs.	Design Engineer	Design				
VIS-18**	Provide vine planting on soundwalls and retaining walls where feasible and appropriate. Per Highway Design Manual, Index 902.3(5), vine planting should be included with all sound barrier projects to reduce the potential for graffiti and to soften the appearance of the wall.	Design Engineer	Design/ Construction				
VIS-19**	Protect with temporary fencing the drip line of existing isolated trees identified on plans as to remain.	Design Engineer	Design/ Construction				
VIS-20**	Plant biostrips and bioswales with vegetative cover that includes a combination of low-growing shrubs and groundcover per the NPDES Construction General Permit, A.9 Definitions: 1) Vegetative Cover.	Design Engineer	Design/ Construction				
VIS-21**	Glare shields shall be used wherever possible to reduce lighting impacts, and to redirect light onto the facility and away from adjacent homes and areas of wildlife habitat.	Design Engineer	Design/ Construction				
	CULTURAL RESOURCES						
CUL-1	Work shall be halted in the vicinity of any previously known or unknown buried cultural materials unearthed during construction until a qualified archaeologist can assess the significance of the materials. Any further mitigation measures required will be developed in accordance with the requirements of Caltrans Section 106 PA – Stipulation XV in accordance with 36 CFR 800.13. Any mitigation measures required by the archaeologist will be implemented, including, if necessary, supplemental environmental documentation.	Design Engineer/ Resident Engineer/ Archaeologist	Design/ Construction				
CUL-2	If human remains and associated artifacts are encountered during ground-disturbing activities, then the provisions of Public Law 101-601, Section 5097.98 and .99 of the PRC, and Section 7050 of the Health and Safety Code, will be followed. Any further mitigation measures required shall be developed in accordance with the requirements of 36 CFR 800.13, the post review discovery provision of the regulations implementing Section 106 of the NHPA.	Design Engineer/ Resident Engineer/ Archaeologist	Design/ Construction				
CUL-3	If any buildings and/or structures in the project APE are determined eligible for listing in the NRHP subsequent to finalizing the Final EIR/EIS, then such buildings and/or structures shall not be destroyed or significantly altered as part of construction of this project. Proper coordination shall be undertaken with the entity responsible for such listing.	Design Engineer/ Resident Engineer/	Design/ Construction				

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CUL-4**	Navy requirement that a qualified Native American and qualified Archaeologist monitor earthmoving activities associated with project construction in the vicinity of the NAVVWNSTA Seal Beach, located along the south of I-405 within the project limits. The areas along the southern I-405 and the northern boundary of the NAVVWNSTA property that require monitoring, will be designated as an Archaeological Monitoring Area (AMA) on the final plans and included in the specifications and estimates for the project. The Native American and Archaeologist will prepare daily monitoring logs and a final report summarizing findings will be submitted to both Caltrans and the Navy following construction completion.	Design Engineer/ Resident Engineer/ Archaeologist	Design/ Construction Post-Construction				
	HYDROLOGY AND FLOODPLAINS						
HYD-1	Project design elements will include bridge pier alignment paralleling the direction of flow to minimize flow obstruction.	Design Engineer	Design				
HYD-2	Bridges will be designed with sufficient freeboard above the 100-year water surface elevation to prevent the bridge deck from impacting flood flows.	Design Engineer	Design				
HYD-3	Positive drainage will be provided during construction and refrain from diverting flows.	Resident Engineer	Construction				
HYD-4	Recommended BMPs will be implemented.	Resident Engineer	Construction				
HYD-5	In-river construction and post construction shall include erosion control and water quality protection	Resident Engineer	Construction				
HYD-6	A contingency plan shall be developed for unforeseen discovery of underground contaminants.	Resident Engineer	Construction				
HYD-7	Construction activities between October and May (rainy season) shall be limited to those actions that can adequately withstand high flows and entrainment of construction materials.	Resident Engineer	Construction				
HYD-8	Adequate conveyance capacity will be provided at bridge crossings to ensure no net increase in velocity.	Design Engineer/ Resident Engineer	Design/ Construction				
	WATER QUALITY AND STORMWATER RUNOFF						
WQ-1	Conforming to the requirements of the Caltrans Statewide NPDES Storm Water Permit, Order No. 2012-0011-DWQ, NPDES No. CAS000003, adopted by the SWRCB on September 19, 2012, in addition to the BMPs specified in the Caltrans <i>Storm Water Management Plan</i> (SWMP) (Caltrans 2003a). The Contractor shall also conform to the requirements of the General NPDES Permit for Construction Activities, Order No. 2009-0009-DWQ, NPDES No. CAS000002 and any subsequent permit in effect at the time of construction	Design Engineer/ Resident Engineer	Design/ Construction				
WQ-2	Preparing and implementing the SWPPP. The SWPPP shall address all State and federal water control requirements and regulations. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to impact water quality. All Construction Site BMPs will follow the latest edition of the Storm Water Quality Handbooks, Construction Site BMP Manual to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing the exceedance of any water quality standards. All work will conform to the Construction Site BMP (Category II) requirements specified in the latest edition of the Caltrans SWMP to control and minimize the impacts of construction and construction-related activities, materials, and pollutants on the watershed(s). These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other nonstormwater BMPs. For a complete list, refer to Section 4.5 of the Caltrans SWMP (2003a).	Design Engineer/ Resident Engineer	Design/ Construction				
WQ-3	Dewatering is anticipated for the proposed project; therefore, this project will fully conform to Order No. R8-2009-0003 NPDES No. CAG998001, <i>General Waste Discharge Requirements for Discharges to Surface Water which Pose an Insignificant (De Minimus) Threat to Water Quality</i> , from the Santa Ana RWQCB. Dewatering BMPs will be used to control sediments and pollutants. A laboratory, certified under either the Environmental Laboratory Accreditation Program or the National Environmental Laboratory Accreditation Program, will test and monitor any discharge for compliance with RWQCB requirements.	Design Engineer/ Resident Engineer	Design/ Construction				
WQ-4	Maintenance BMPs – Maintenance BMPs will be adhered to in accordance with Caltrans policies, including routine maintenance work, such as litter pickup, toxics control, street sweeping, drainage, and channel cleaning.	Design Engineer/ Resident Engineer	Design/ Construction				
WQ-5	Design Pollution Prevention BMPs – Permanent soil stabilization systems will be incorporated into project design, such as	Design Engineer/	Design/				

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	preservation of existing vegetation, concentrated flow conveyance systems (e.g., drainage ditches, dikes, berms, swales), and slope/surface protection systems that utilize either vegetated or hard surfaces. Identification of Design Pollution Prevention BMPs will occur during final design.	Resident Engineer	Construction				
WQ-6	Treatment BMPs – All Caltrans-approved Treatment BMPs will be implemented to the MEP. Treatment BMPs may include traction sand traps, infiltration devices, detention devices, biofiltration strips/swales, dry weather flow diversion, media filters, multi-chamber treatment trains, wet basins, and gross solids removal devices.	Design Engineer/ Resident Engineer	Design				
	GEOLOGY/SOILS/SEISMIC/TOPOGRAPHY						
GEO-1**	In accordance with standard Caltrans requirements, detailed geotechnical studies shall be conducted during the project's future PS&E phase. If results of these studies find high potential for seismic slope instability or lateral spreading, additional measures will need to be incorporated for new structures associated with the project, including bridges, embankments, and retaining walls. Resulting recommendations from the detailed studies shall be incorporated into the project's final design plans to address seismic safety, liquefaction, and load-bearing concerns present in the project area.	Design Engineer	Design				
GEO-2**	Selection of earth-retaining system types should be based on consideration of foundation-bearing capacity, anticipated settlement and ability of the system to tolerate settlements, overall slope stability, constructability, and cost.	Resident Engineer	Construction				
GEO-3**	Depending on locations, drilled piles (for sign foundations or soundwalls) may extend below the groundwater and will require appropriate construction methods.	Resident Engineer	Construction				
GEO-4**	Corrosion mitigation for steel and concrete structures should generally follow Caltrans Corrosion Guidelines (2003 or latest). The latest Caltrans Highway Design Manual (Section 855) provides corrosion requirements for roadway structures (e.g., culverts, signs) for a 50-year design life (Caltrans, 2010).	Design Engineer	Design				
GEO-5**	The project engineer shall request a Materials Report in the early stage of PS&E. The report shall include the results of field tests and sampling for corrosion (i.e., pH, sulfate, chloride, and minimum resistivity) for use in recommending culvert materials and concrete mix designs. Sampling and testing shall be performed in accordance with Caltrans Corrosion Guidelines (2003 or latest).	Design Engineer	Design				
GEO-6**	In general, earthwork should be performed in accordance with Sections 6 and 19 of the Caltrans Standard Specifications. The new construction will have to be carefully planned to protect the many existing utilities in the area.	Resident Engineer	Construction				
GEO-7**	Monitoring during construction shall be done by a licensed geologist and engineer to ensure that the construction site was properly characterized by the geotechnical studies and that the project design is in compliance with geotechnical and seismic safety standards and practices included in the final design package.	Resident Engineer	Construction				
	PALEONTOLOGY						
PAL-1**	If auguring or foundation construction will penetrate 5 ft or more into undisturbed sediment, Caltrans shall ensure that a PMP is prepared and adhered to during construction of the portions that are identified as having high paleontological sensitivity. The PMP shall include, but not be limited to, the following instructions: <ul style="list-style-type: none">• A qualified principal paleontologist (MS or PhD in paleontology or geology familiar with paleontological procedures and techniques) will be retained to prepare a Paleontological Mitigation Plan (PMP) following the Caltrans Standard Environmental Reference (SER) if auguring or foundation construction will penetrate 5 ft or more into undisturbed sediment.• The paleontologist will be present to consult with construction contractors at pre-grading meetings.• Paleontological monitoring under the direction of the qualified principal paleontologist will be performed for subsurface construction activities involving sensitive geologic formations.• When fossils are discovered, the paleontologist (or paleontological monitor) will recover them. Construction work in these areas will be halted or diverted to allow recovery of fossil remains in a timely manner.• Fossil remains collected during the monitoring and salvage portion of the mitigation program will be prepared and cataloged.• Prepared fossils, along with copies of all pertinent field notes, photos, and maps will then be deposited in a scientific institution with paleontological collections.• A final report will be completed that outlines the results of the mitigation program.	Design Engineer/ Resident Engineer/ Paleontologist	Design/ Pre-Construction/ Construction/ Post-Construction				
	HAZARDOUS MATERIALS						
HAZ-1**	Prior to completion of the Final Design, sampling for ADL shall be conducted by OCTA within unpaved locations adjacent to the existing roadway ROW within the study area if such locations have not been tested.	OCTA	PS&E				
HAZ-2**	Prior to construction, if still present, two 30-gallon open trash bins and two 5 gallon buckets that were dumped in the I-405 northbound shoulder just south of the I-605 interchange shall be removed and properly disposed of by the contractor.	OCTA	Pre-Construction				
HAZ-3**	During the construction phase, the upper 2 ft of soil excavated along the I-405 northbound shoulder from the I-605/I-405 connector to approximately 1,000 ft south of the I-605/I-405 connector shall be set aside and tested for TPH (gasoline and diesel) by the contractor before being disposed of or reused at the site.	OCTA	Construction				
HAZ-4**	If signs of potential impact (e.g., odors, discolored soil, and any hazardous waste) are observed during construction activity, construction shall cease and the California Department of Transportation's Unknown Procedures for Construction shall be followed. If groundwater is encountered during construction activities, or if construction dewatering is necessary, then sampling and analysis of groundwater shall be conducted to identify the appropriate management and disposal of the groundwater.	Resident Engineer	Construction				
	AIR QUALITY						
AQ-1	The construction contractor shall comply with Caltrans Standard Specifications Section 14 (2010).	Design Engineer/	Design/				

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	<ul style="list-style-type: none">Section 14-9.01specifically requires compliance by the contractor with all applicable laws and regulations related to air quality, including air pollution control district and air quality management district regulations and local ordinances. Section 14-9.02 is directed at controlling dust. If dust palliative materials other than water are to be used, material specifications are contained in Section 18.	Resident Engineer	Construction				
AQ-2	The construction contractor shall apply water or dust palliative to the site and equipment as frequently as necessary to control fugitive dust emissions. Fugitive emissions generally must meet a “no visible dust” criterion either at the point of emission or at the ROW line, depending on local regulations.	Resident Engineer	Construction				
AQ-3	The construction contractor shall spread soil binder on any unpaved roads used for construction purposes, and all project construction parking areas.	Resident Engineer	Construction				
AQ-4	The construction contractor shall wash off trucks as they leave the ROW, as necessary, to control fugitive dust emissions.	Resident Engineer	Construction				
AQ-5	The construction contractor shall properly tune and maintain construction equipment and vehicles.	Resident Engineer	Construction				
AQ-6	The construction contractor shall use low-sulfur fuel in all construction equipment as provided in CCR Title 17, Section 93114.	Resident Engineer	Construction				
AQ-7	The construction contractor shall develop a dust control plan documenting sprinkling, temporary paving, speed limits, and expedited revegetation of disturbed slopes as needed to minimize construction impacts to existing communities.	Resident Engineer	Construction				
AQ-8	The construction contractor shall locate equipment and materials storage sites as far away from residential and park uses as practical. Construction areas shall be kept clean and orderly.	Resident Engineer	Construction				
AQ-9	The construction contractor shall establish environmentally sensitive areas for sensitive air receptors within which construction activities involving extended idling of diesel equipment would be prohibited, to the extent that is feasible.	Resident Engineer	Construction				
AQ-10	The construction contractor shall use track-out reduction measures, such as gravel pads, at project access points to minimize dust and mud deposits on roads affected by construction traffic.	Resident Engineer	Construction				
AQ-11	The construction contractor shall cover all transported loads of soils and wet materials prior to transport, or provide adequate freeboard (space from the top of the material to the top of the truck) to reduce PM ₁₀ and deposition of PM during transportation.	Resident Engineer	Construction				
AQ-12	The construction contractor shall remove dust and mud that are deposited on paved, public roads due to construction activity and traffic to decrease PM.	Resident Engineer	Construction				
AQ-13	The construction contractor shall route and schedule construction traffic to avoid peak travel times as much as possible to reduce congestion and related air quality impacts caused by idling vehicles along local roads.	Resident Engineer	Construction				
AQ-14	The construction contractor shall install mulch or plant vegetation as soon as practical after grading to reduce windblown particulate in the area.	Resident Engineer	Construction				
	NOISE						
NOI-1	Design and install noise barriers at the locations as recommended in the NADR, as shown for the build alternatives in Appendix N, Sections N2, N3, and N4.	Design Engineer/ Resident Engineer	Design/ Construction				
NOI-2	Sound control shall conform to the provisions in Section 14-8.02, “Noise Control,” of the Standard Specifications. According to requirements of this specification, construction noise cannot exceed 86 dBA at 50 ft from the jobsite activities from 9:00 p.m. to 6:00 a.m.	Resident Engineer	Construction				
NOI-3	All internal combustion engines shall be equipped with the manufacturer-recommended muffler. An internal combustion engine cannot be operated on the jobsite without the appropriate muffler.	Resident Engineer	Construction				
NOI-4	The contractor shall prepare a Noise and Vibration Monitoring and Mitigation Plan by a qualified Acoustical Engineer and submit it for approval. The Plan must outline noise and vibration monitoring procedures at predetermined noise and vibration sensitive sites, as well as historic properties. The Noise and Vibration Monitoring and Mitigation Plan also must include calculated noise and vibration levels for various construction phases and mitigation measures that would be needed to meet the project specifications. The contractor shall not start any construction work or operate any noise-generating construction equipment at the construction site before approval of the Noise and Vibration Monitoring and Mitigation Plan. The Noise and Vibration Monitoring and Mitigation Plan must be updated every three3 months or sooner if there are any changes to the construction activities.	OCTA/ Resident Engineer	Pre-Construction/ Construction				

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NOI-5	It is predicted that construction activities that use vibratory compaction rollers and pile drivers could cause some human annoyance impacts. There are cases where it may be necessary to use this type of equipment in close proximity to residential and commercial buildings. The following are procedures that could be used to minimize the potential for human annoyance from construction vibration: <ul style="list-style-type: none">• Conduct vibration monitoring during vibration-intensive activities.• Properly maintain all motorized equipment in a state of good repair to limit wear-induced vibration.• Where feasible, avoid the use of impact -type pile driving near residences; instead use drilled piles or the use of a sonic or vibratory pile driver, which cause lower vibration levels (where the geological conditions permit their use).• When there is a possibility of human annoyance from construction activities, such as the operation of vibratory rollers, absent urgent and unexpected circumstances, conduct such activity only during weekday daytime hours when the ambient background noise and vibration is higher and many residents are away from their homes at work.• Develop a phasing plan so that high vibration -generating activities do not occur within the same time period isn close proximity to each other, to the maximum extent practicable. Avoid the use of large vibratory rollers and packers near sensitive areas, when possible, and use smaller equipment with smaller lifts.	OCTA/ Resident Engineer	Construction				
	BIOLOGICAL ENVIRONMENT						
BIO-1	Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around riparian/riverine vegetation adjacent to the project footprint to designate Environmentally Sensitive Areas (ESA) to be preserved. No grading or fill activity of any type will be permitted within these ESAs. In addition, heavy equipment, including motor vehicles, will not be allowed to operate within the ESAs. All construction equipment will be operated in a manner to prevent accidental damage to nearby preserved areas. No structure of any kind, or incidental storage of equipment or supplies, will be allowed within these protected zones. Silt fence barriers will be installed at the ESA boundary to prevent accidental deposition of fill material in areas where vegetation is immediately adjacent to planned grading activities.	Design Engineer/ OCTA/ Resident Engineer	Design/ Pre-Construction/ Construction				
BIO-2	During Design, Caltrans/OCTA shall consult with the appropriate responsible resource agency (e.g., CDFG, USACE, and RWQCB) to verify delineation results, determine permanent losses and temporary impact areas, and identify compensatory mitigation, as applicable. Prior to undertaking ground-disturbing activities within or immediately adjacent to any aquatic resource areas, OCTA and/or their consultant shall obtain all obligatory discretionary permits/authorizations.	Caltrans Biologist/ Resident Engineer	PA/ED/ Pre-Construction				
BIO-3	Prior to clearing or construction, highly visible barriers (e.g., orange construction fencing) will be installed around jurisdictional areas and designated as Environmentally Sensitive Areas (ESA) to be preserved. ESAs will extend from the end of the permitted area to the edge of the construction footprint (within existing and proposed ROW and also within any temporary construction easements) to preserve all other waters of the U.S./State that are not otherwise permitted in accordance with BIO-3.	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Pre-Construction				
BIO-4	Although no special status plant species were observed during preliminary surveys, pre-construction special status plant surveys will be conducted prior to any ground disturbing activities.	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Construction				
BIO-5	To avoid impacts to nesting birds, any native vegetation removal or tree (i.e., native or exotic) trimming activities will occur outside of the nesting bird season (February 15 through August 31). If vegetation clearing is necessary during the nesting season, a qualified biologist will conduct a preconstruction survey to identify the locations of nests. Should nesting birds be found, an exclusionary buffer will be established by the biologist. This buffer shall be clearly marked in the field by construction personnel under guidance of the biologist, and construction or clearing will not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active.	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Construction				
BIO-6	To ensure that any owls that may occupy the site are not affected by construction activities, preconstruction burrowing owl surveys and potential owl relocation will be required prior to any phase of construction. These preconstruction surveys are also required to comply with the MBTA and the California Fish and Game Code. If any of the preconstruction surveys determine that the species is present, one or more of the following measures may be required: (1) avoidance of active nests and surrounding buffer area during construction activities; (2) passive relocation of individual owls; (3) active relocation of individual owls; and (4) preservation of onsite habitat with long-term conservation value for the owl.	OCTA/ Biologist/ Resident Engineer	Pre-Construction/ Construction				
BIO-7	To avoid impacts to raptors, all new highway lighting adjacent to NAVWPNSTA Seal Beach shall not contain features that allow for raptor perches, as feasible.	OCTA/ Resident Engineer	Construction				

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BIO-8	To avoid impacts to migratory birds at the Seal Beach National Wildlife Refuge, all new highway lighting adjacent to NAVWPNSTA Seal Beach shall be directed down towards the highway itself.	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Construction				
BIO-9	<p>A qualified bat biologist shall conduct a preconstruction bat habitat suitability assessment to determine if the construction area contains potential bat habitat within the project footprint or immediate surroundings, including roosting sites, foraging sites, and/or maternity colonies. The surveys shall include a combination of inspection, sampling, exit counts, and acoustic surveys. The survey shall be completed in June or at a time determined appropriate by a qualified bat biologist prior to construction, because maternity roosts are generally formed in late spring.</p> <p>If occupied or historic roosting sites, foraging sites, and/or maternity colonies are identified during the preconstruction bat habitat suitability assessment, construction activities shall not be initiated at the location until the bats have been excluded from the location, using CDFGCDFW-approved exclusion devices, and the qualified bat biologist certifies the location bat free. All exclusion activities will be coordinated with CDFG CDFW and completed under the supervision of a qualified bat biologist. Once installed, exclusion devices will be maintained throughout the duration of the construction activities or until construction at the location is deemed complete and bat use is again acceptable.</p> <p>If maternity sites are identified during the preconstruction bat habitat suitability assessment, no construction activities at the location containing the maternity roost will be allowed during the maternity season (April 1 through July 30), unless a qualified bat biologist has determined that young have been weaned. If present, and it is anticipated that construction activities cannot be completed outside of the maternity season, then bat exclusion at maternity roost sites shall be completed either as soon as allowed by the qualified bat biologist after the young have been weaned or outside of the maternity season, prior to initiating construction activities or as otherwise approved by the qualified bat biologist in coordination with CDFGW.</p>	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Pre-Construction				
BIO-10	<p>In compliance with EO 13112, weed control will be performed to minimize the importation of nonnative plant material during and after construction. Eradication strategies will be employed should an invasion occur. Measures addressing invasive species abatement and eradication will be included in the project design and contract specifications. These measures may include, but not be limited to:</p> <ul style="list-style-type: none">During design phase, the landscape pallet will be sent and reviewed by the Caltrans biologist.All construction site BMPs from the SWPPP will be followed.During construction, all construction equipment will be cleaned of mud or other debris that may contain invasive plants and/or seeds and will be inspected to reduce the potential of spreading noxious weeds before mobilizing to arrive at the site and before leaving the site. This will be included in project provisions.After construction, affected areas adjacent to native vegetation will be revegetated with plant species native to the southern California region approved by the Caltrans District Biologist. <p>After construction, all revegetated areas will be prohibited from the use of species listed in the Cal-IPC California Invasive Plant Inventory that have a high or moderate rating.</p>	Design Engineer/ OCTA / Biologist/ Resident Engineer	Design/ Construction				

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